STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM
205 JEFFERSON STREET, P.O. BOX 176
JEFFERSON CITY, MISSOURI 65102

EMISSIONS INVENTORY QUESTIONNAIRE (EIQ)

FORM 2.9 STACK TEST/CONTINUOUS EMISSION MONITORING WORKSHEET

SHADED AREAS FOR OFFICE USE ONLY

FACILITY NAME	FIPS COUNTY NO.	PLANT NO.	YEAR OF DATA

POINT NO.	AIRS ID-PT	SOURCE CLASSIFICATION CODE (SCC)	SEG NO.	STACK NO.	AIRS ID-ST

POLLUTANT TESTED	CAS NUMBER	NOTE: USE A SEPARATE WORKSHEET FOR EACH POLLUTANT TESTED.

[1] EMISSION SOURCE INFORMATION

EQUIPMENT MAKE/MODEL	

TYPE OF CONTROL DEVICE	CONTROL EFFICIENCY (%)

LIMITATIONS ON EMISSIONS, PRODUCTION OR OPERATING TIME (IF ANY)

[2] STACK TEST INFORMATION

TESTING FIRM NAME AND ADDRESS	EPA METHOD(S) USED

TEST DATE(S)	RESULTS	COMPLIANCE
		☐ YES ☐ NO

TEST TECHNIQUE (CHECK ONE)	LATEST CALIBRATION OF TESTING EQUIPMENT
☐ OPERATIONAL ☐ MAXIMUM DESIGN RATE ☐ BOTH	

AGENCY OBSERVING TEST	NAME OF OBSERVER(S)
☐ EPA ☐ MO DNR ☐ OTHER	

[3] CONTINUOUS EMISSION MONITORING INFORMATION

CONCENTRATION OF POLLUTANT	UNITS	FLOW RATE OF STACK	UNITS

LATEST CALIBRATION OF MONITOR	RESULTS OF CALIBRATION

MONITOR AVERAGING PERIOD	% MONITOR DOWN TIME

[4] EMISSION FACTOR CALCULATION

EMISSION RATE *	UNITS LBS/HR	***NOTE:** DOCUMENTATION SHOULD INCLUDE SUMMARY PAGE INFORMATION FROM THE TEST DATA TO VERIFY THE EMISSION AND PRODUCTION RATE.
PRODUCTION RATE *	UNITS/HR	

EMISSION FACTOR =
[{EMISSION RATE} / {PRODUCTION RATE}] / [1 - {CONTROL EFFICIENCY (%)} / 100]

EMISSION FACTOR	UNITS

ENTER THE **EMISSION FACTOR** IN THE APPROPRIATE BOX IN BLOCK 7 ON FORM 2.0., EMISSION POINT INFORMATION. IF APPLICABLE, ENTER THE **CONTROL DEVICE TYPE** AND **CONTROL EFFICIENCY (%)** IN BLOCK 3 ON FORM 2.0

INSTRUCTIONS
FORM 2.9 STACK TEST
CONTINUOUS EMISSION MONITORING WORKSHEET

This form is **REQUIRED** only if stack tests or continuous emission monitoring results are used to derive emission factors.

Complete this form if you use the results from a stack test or a Continuous Emission Monitor (CEM) to calculate an annual emissions factor for a pollutant emitted from the tested stack. If the testing determined the emission rate for more than one pollutant, you must complete a separate Form 2.9 to calculate the emission factor for each pollutant. The same emission point may emit other pollutants that do not have an emission rate established by the testing. If a stack emits an untested pollutant, determine the amount of the pollutant emitted by another method and enter it on Form 2.0, Emission Point Information, along with the stack test emissions.

The documentation from the testing report provided to verify the emission and production rate should include the minimum number of summary pages necessary to validate the emission and production rate and other testing information reported.

> *NOTE:* Do **NOT** send the entire stack test report or all the results from the continuous emissions monitoring.

Complete **Facility Name, FIPS County Number, Plant Number and Year of Data.**
See Form 1.0 instructions, page 1.0-1.

Point Number: This number is the unique identification number for each specific stack or CEM location. This identification number must match the point number entered on Form 1.1, Process Flow Diagram, Form 1.2, Summary of Emission Points and Form 2.0, Emission Point Information.

Source Classification Code (SCC) Number: List the SCC that identifies the process.

Stack Number: This is the number used to uniquely identify the specific stack. This stack number must match the stack number shown in the flow diagram of Form 1.1.

Pollutant Tested: This is the criterion or toxic pollutant tested.

CAS Number: Enter the Chemical Abstract Service (CAS) Registry number for the chemical tested.

1) EMISSION SOURCE INFORMATION

Equipment Make/Model: Enter the description of the type of equipment that is the source of emission.

Control Device Type: Give a general description of the type of any pollution control devices used for the pollutant tested. The pollutant for which the control device is used must be the same as the pollutant tested in the stack test or monitoring.

Control Efficiency (%): This is the estimated efficiency of the control equipment or a measure of the effectiveness of the control equipment in reducing the amount of the specific pollutant tested and released.

Limitations on Emissions, Production or Operating Time (if any): These are any enforceable conditions that may have been placed on the process by an air permit or other restriction. Typically, air permit conditions may limit the annual amount of the emissions or the amount of a pollutant that may be emitted in a specific time. The permit might also restrict the production rate to a certain maximum level or limit the amount of time that the process may be operated. Any condition that creates an enforceable limitation on the emission point should be entered in this box.

2) STACK TEST INFORMATION

Testing Firm Name and Address: Enter the name and address of the firm that actually performed the stack test.

U.S. Environmental Protection Agency (EPA) Method(s) Used: Enter the number of the EPA Reference Method followed in testing procedures for the specific pollutant in the stack test.

Test Date(s): Enter the date and/or dates of the stack test for the pollutant being tested.

Results: Enter the results of the stack test as they apply to meeting any limitations or to finding the emission rate of the pollutant. You may report this information in an attachment.

Compliance: Compliance means whether the stack test indicated the emissions from the stack were within any permit or other limiting conditions. Checking the Yes box means that the test indicated any limiting conditions were met.

> *NOTE:* Do **NOT** send the entire stack test report or all the results from the continuous emissions monitoring.

How Tested: This box identifies the conditions of the stack test. Checking the Operational Rate means that the stack test was conducted when the equipment was running at the normal operating rate. The operational rate test is acceptable for calculating the actual emissions from the stack test. Checking the Maximum Design Rate indicates the stack test was performed while the equipment was running at the maximum rate possible. The Maximum Design Rate test can be used only for calculating the maximum potential emissions for the pollutant. The Both box would indicate that both operating conditions were tested.

Latest Calibration of Testing Equipment: This is the last date that the testing equipment passed a calibration test before it was used to perform this stack test. NOTE: Failure to calibrate test equipment may result in rejection of test data.

Agency Observing Test: This indicates which agency observed the test. Checking the EPA box would indicate that an observer from the Environmental Protection Agency was present during the test. Checking the MO DNR box would indicate that a member of the Missouri Department of Natural Resources was present during the testing. Checking the Other box indicates a member of an agency other than the EPA or MO DNR was present. Please fill in the agency represented.

> *NOTE:* If no box is selected the APCP will not accept the test, unless prior approval is given.

Name of Observer(s): This is the full name of the person(s) observing the test. Please include the full name of each agency observer if more than one person or agency was represented.

3) CONTINUOUS EMISSION MONITORING INFORMATION

Concentration of Pollutant: This is the weighted average concentration of the pollutant emitted as indicated by the monitoring results for the entire year. Use the WEIGHTED AVERAGE concentration figure to determine the emissions of the pollutant. Obtain the weighted average for the concentration figure by multiplying the concentration and flow rate figures for each averaging period and summing these numbers. Then divide the figure calculated in step 1 by the sum of the average flow rates for the entire year. This will give the weighted average for the concentration figure for the entire year. Make sure to enter the concentration figure in mass per volume of gas in the Units box.

Flow Rate of Stack: This is the average flow rate indicated by the monitoring results for the entire year. Make sure to enter the flow rate figure in volume of gas per time in the Units box.

Latest Calibration of Monitor: This is the date the monitoring system was last calibrated.

Results of Calibration: Give the results of the latest calibration test. Typically, the results of CEM calibration are expressed with relative accuracy or percent variation from a known test standard.

Monitor Averaging Period: This is the time frame for which the CEM averages the results of the monitoring.

% Monitor Down Time: This is the percentage of time that the CEM system has not been operating or has not been operating properly for the year. A high percentage of Down Time for the CEM may result in rejection of the data for determining the emissions of a pollutant.

4) EMISSION FACTOR CALCULATION

Emission Rate: This is the rate determined from a stack test done under operating conditions or the average rate from continuous monitoring for the entire year. Report the emission rate in pounds of pollutant emitted per hour of operation. The emission rate can be based on input or output rates from the process. The method should be consistent with that used in the production rate, in the testing and the annual throughput figures entered on Form 2.0, Emission Point Information.

Production Rate: This is the amount of material used in or produced by the process during the stack test or monitoring. Express the production rate figure in units per hour of operation. Express the production rate in the same units as the **Annual Throughput** in Block 4 on Form 2.0. The units must correspond to the SCC Emission Factor Units. **Documentation** should include a summary page from the test data that verifies both the emission and the production rates.

Emission Factor: This is found by dividing the emission rate by the production rate. Additionally, if the stack has a control device to control the pollutant of the test or monitoring, the emission factor found above should also be divided by [(100 minus the Control Efficiency Percent) divided by 100]. Enter this calculated emission factor in the Emission Factor box. Also, enter the emission factor units expressed in pounds per unit in the Units box.

Instructions for Form 2.9
Stack Test Continuous Emission Monitoring Worksheet
Continued

ENTER THE FOLLOWING ON FORM 2.0, EMISSION POINT INFORMATION:

Block 3 - If a control device is being used, enter the **Control Device Type** and **Control Efficiency (%)**.

Block 7 - Enter in the appropriate pollutant box, the calculated **Emission Factor** for the pollutant tested at this Stack or CEM emission point.

If the stack is the source of another pollutant that was not tested, some other method must determine the amount of that pollutant and be entered on Form 2.0.